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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,164

02/24/2004

Kenichi Niwa

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EXAMINER

AZARIAN, SEYED H

ART UNIT

PAPER NUMBER

2624

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

04/25/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/25/2007.

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Office Action Summary	Application No.	Applicant(s)	
	10/784,164	NIWA ET AL.	
	Examiner	Art Unit	
	Seyed Azarian	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 23-35 is/are rejected.
- 7) ☒ Claim(s) 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/24/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-2, 4-5, 7-20 and 23, are rejected under 35 U.S.C. 102(e) as being anticipated by Harakawa et al (U.S. patent 6,385,331)).

Regarding claim 1, Harakawa discloses an operation recognition system, comprising: an object to be operated; at least one camera configured to acquire image data of an operator, at least a predetermined number of image data being acquired in a predetermined time period (column 1, lines 5-10, the present invention relates to a hand pointing, and more specifically to a hand pointing apparatus for picking up a person to be recognized and for determining a position or a direction pointed to by the person to be recognized, also column 18, lines 6-16, an image of the information input space is picked up by the video camera and the image is then output from the video camera, whether a predetermined time period has passed since the illuminator was switched on is determined);

a processor configured to perform recognition processing on the acquired image data, so as to define a first virtual plane in between the object and the operator, and to determine if a predetermined part of the operator penetrates the first virtual plane

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(column 20, lines 44-56, the position (plane coordinates) of the information inputting person on the floor surface is set to the plane coordinate, also column 22, lines 38-50, in step 176, based on the three-dimensional coordinates of the reference point P0 of the information inputting person calculated in the previous step, and the three-dimensional coordinated of the feature point Px calculated in step 174, the direction of an extended virtual line (see Fig. 11) connecting the reference point and feature point is determined as the direction pointed to by the information inputting person, and virtual line are calculated in order to determine the position pointed to by the information inputting person);

and a controller configured to control the object based on the determination (Fig. 6, column 17, line 60 through column 18, line 16, control processing which is regularly carried out by the controller 22, an image of the information input space is picked up by the video camera based on determination).

Regarding claim 2, Harakawa discloses the system according to claim 1, wherein the processor is configured to recognize a predetermined motion of the operator and the controller is operative when the processor recognizes the predetermined motion of the operator (column 18, line 6-29, control processing which is regularly carried out by the controller 22, an image of the information input space is picked up by the video camera based on determination, also column 20, line 57 through column 21, line 3).

Regarding claim 4, Harakawa discloses the system according to claim 1, wherein the processor is configured to recognize an operational authority of the operator based on the recognition processing (column 2, line 59 through column 3, line 15, by

calculating a three-dimensional coordinate of feature point of the person to be recognized a point whose position is changed in response to the motion by person to be recognized, further column 24, lines 12-23, refer to information inputting person).

Regarding claim 5, Harakawa discloses the system according to claim 1, wherein the processor is further configured to detect a part of the first virtual plane penetrated by the predetermined part of the operator, and wherein the controller controls the object based on the detection (column 10, lines 12-37, executed a predetermined processing when a change is detected by the first detecting).

Regarding claim 7, Harakawa discloses the according to claim 1, wherein, when the processor is configured to recognize a length of an operator's arm, and to define the first virtual plane at a position within the recognized length from the operator (column 10, lines 12-20, refer to hand, the arm or the like).

Regarding claim 8, Harakawa discloses the system according to claim 1, wherein the first virtual plane is defined at a variable position based on the recognition (column 20, lines 44-56, the position (plane coordinates) of the information inputting person on the floor surface is set to the plane coordinate, also column 22, lines 38-50, in step 176, based on the three-dimensional coordinates of the reference point P0 of the information inputting person calculated in the previous step, and the three-dimensional coordinated of the feature point Px calculated in step 174, the direction of an extended virtual line (see Fig. 11) connecting the reference point and feature point is determined as the direction pointed to by the information inputting person, and virtual line are

calculated in order to determine the position pointed to by the information inputting person).

Regarding claim 9, Harakawa discloses the system according to claim 1, wherein the processor is configured to determine a penetration when the predetermined part of the operator penetrates the first virtual plane by more than a predetermined length (column 10, lines 12-29, refer to predetermined length).

Regarding claim 11, Harakawa discloses the system according to claim 1, wherein the processor is configured to determine a penetration when the predetermined part of the operator penetrates the first virtual plane for more than a predetermined period (Fig. 15, column 25, lines 32-47).

Regarding claim 13, Harakawa discloses the system according to claim 1, wherein the controller is configured to control the object based on a length by and a time period in which the predetermined part of the operator penetrates the first virtual plane (column 18, line 6-29, control processing which is regularly carried out by the controller 22, an image of the information input space is picked up by the video camera based on determination, also column 10, lines 12-20, refer to hand, the arm or the change in the length).

Regarding claim 14, Harakawa discloses the system according to claim 1, wherein the object includes a display configured to display one or more operation items, and wherein the controller is configured to control the implementation of one of the operation items based on the recognition and the determination (column 15, lines 17-40, displaying various types of information).

Regarding claim 15, Harakawa discloses the system according to claim 14, wherein the processor is configured to recognize a predetermined motion of the operator, and the processor is configured to determine that the predetermined motion represents a click operation (column 30, lines 35-49, click motion).

Regarding claim 17, Harakawa discloses the system according to claim 13, wherein the processor is configured to recognize a predetermined motion of the operator, and the processor is configured to determine that the predetermined motion represents a drag operation (Fig. 22A and 22B, column 30, lines 35-49, bending and turning and extending the wrist or finger (dragging) and forward or backward motion of the hand).

Regarding claim 18, Harakawa discloses the system according to claim 1, further comprising a second object configured to operate in response to the object (column 33, lines 13-30, response to the result of the determination).

Regarding claim 19, Harakawa discloses the system according to claim 1, wherein the processor is further configured to define a virtual keyboard in the first virtual plane, and wherein the controller is configured to control the object in relation to a keyboard input via the virtual keyboard based on the determination (see claim 1, also column 15, lines 32-41, refer to keyboard).

Regarding claim 23, Harakawa discloses the system according to claim 1, wherein the object includes a display configured to display one or more operation items, the display including a projector and a screen, wherein the first virtual plane is defined in between the screen and the operator (column 15, lines 8-30, operator and screen).

With regard to claims 10, 12, 16 the arguments analogous to those presented above for claims 1, 9, 11, and 15 are respectively applicable to claims 10, 12, 16.

With regard to claims 20 the arguments analogous to those presented above for claims 1, 19 are respectively applicable to claims 20.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 24-35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Harakawa et al (U.S. patent 6,385,331) in view of Rubbert et al (U.S. patent 7,029,275).

However regarding claim 3, Harakawa does not explicitly state its corresponding "recognize predetermined voice". On the other hand Rubbert teaches (column 21, lines 37-54, the user interface also includes a keyboard and mouse for manipulating the virtual model of object. The base station may alternatively include a voice recognition module that is trained to recognize a voice command).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Harakawa invention according to the teaching of Rubbert because combination of Harakawa and Rubbert provides computerized,

interactive method and associated system for virtual model and voice recognition, which can easily implemented in an scanning device.

Regarding claim 27, Harakawa discloses the system according to claim 1, wherein the object includes an appliance (column 10, lines 12-29, the plurality of images and for detecting a changes in either the area).

Regarding claim 30, Harakawa discloses the system according to claim 1, wherein the object includes a display configured to display a virtual plane position change window and a position of the first virtual plane is changed in accordance with the determination (see claim 1, also column 10, lines 12-29, the plurality of images and for detecting a changes in either the area).

Regarding claim 32, Harakawa discloses the apparatus according to claim 31, further comprising a shape detector configured to detect a shape of the operator's hand; and a recognition mechanism configured to recognize that the operator has an operation authority when the detected shape is identical to a predetermined shape (column 20, line 57 through column 21, line 12, based on the shapes of image).

With regard to claims 24-26, 28 and 29 the arguments analogous to those presented above for claims 1, 3, 27 and 30 are respectively applicable to claims 24-26, 28 and 29.

With regard to claims 31 and 33-35 the arguments analogous to those presented above for claims 1, 3, 5 and 7 are respectively applicable to claims 31 and 33-35.

5. Claim 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over Harakawa et al (U.S. patent 6,385,331) in view of Tanide et al (U.S. patent 6,201,516).

However regarding claim 6, Harakawa does not explicitly state its corresponding "recognize an eye of the operator as a view point, and to define the first virtual plane between the object and the view point". On the other hand Tanide in the same field of virtual reality teaches (column 2, line 65 through column 3, line 7, the visually recognized range of a viewer (eye), a projecting system giving continuity in an image and a high feeling of presence).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Harakawa invention according to the teaching of Tanide because it provides system for sensation is defined as a system giving a virtual experience and desire motion of an image operated interactively by a viewer.

Allowable Subject Matter

6. Claims 21 and 22 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other prior art cited

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(U.S. patent 7,161,616) to Okamoto et al is cited for image processing device and monitoring system.

(U.S. patent 7,007,236) to Dempski et al is cited for lab window collaboration.

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(U.S. patent 6,842,175) to Schmalstieg et al is cited for tools for interacting with virtual environments.

(U.S. patent 6,407,762) to Leavy is cited for camera-based interface to a virtual reality application.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
April 8, 2007

